

IEA-Advanced Motor Fuels ANNUAL REPORT 2023

AUSTRIA



Austria

Drivers and Policies

Transport GHG Emissions Share and Increase

The decarbonization of road transport presents the greatest challenge in Austria compared with other sectors: the greenhouse gas (GHG) emissions associated with road transport have increased steadily since 1990 (+59%), mainly as a result of greater road use (in terms of kilometres driven) in passenger and freight transport. In addition, the amount of fuel sold in Austria but used abroad increased because of higher fuel prices in neighbouring countries. GHG emissions reached their peak in 2005, followed by a period between 2005 and 2012 when GHG emissions decreased due to lower amounts of fuel sold, increased use of biofuels for blending, and an improved fleet with lower specific fuel consumption. Since then, GHG emissions from transport have been gradually increasing again, except for a sharp decrease in the pandemic year (2020).

According to the [Environmental Agency Austria](#), in 2021, the transport sector in Austria generated GHG emissions of approximately 21.6 million tonnes of carbon dioxide (CO₂) equivalent. Compared with 2020, emissions increased by 4.2% as a consequence of the higher mileage after the 2020 pandemic year. In 2021, 55% of the road transport GHG emissions were caused by passenger cars, 8% by light-duty vehicles, 36% by heavy-duty vehicles and buses, and around 1% by mopeds and motorcycles.

In 2021, biofuels (all types) replaced around 5.84% of fossil fuels sold. This share exceeds the substitution target of 5.75% of fossil fuel on the market, as stipulated in the Fuel Ordinance; again, however, it represents a decline compared with previous years. The relatively low sales volume of pure biofuels is due to its relatively lower competitiveness compared with fossil fuels. In 2021, the use of biofuels resulted in a reduction of approximately 1.37 million tonnes of CO₂ emissions in the transport sector.

Politics: Recent Activities and Developments

Austria is committed to carbon neutrality by 2040 — a goal that requires substantially increased decarbonization efforts across all energy sectors. Especially in the transport sector, a radical turnaround is needed to achieve this political target. For this reason, Austria has adopted a number of measures, such as a newly designed taxation system that imposes a price penalty on ecologically destructive activities. This system, enacted in 2021, introduces a CO₂ pricing system with a continuously increasing price penalty, from EUR 30 (USD 32.4) per ton CO₂ (2022) up to EUR 55 (USD 59.4) per ton CO₂ (2025). Beginning in 2026, a European Union (EU)-wide CO₂ emissions trading system will replace national fixed-price rates. In addition, a mandatory procurement of zero-emission vehicles by the public sector is taking effect. Other measures already in place are an increased Normverbrauchsabgabe (NoVA) tax and the “Right to Plug,” which alleviates previous approval hurdles for the installation of charging stations in multi-apartment buildings.

Austria has also developed a number of national strategies in the area of transport, such as the [Mobility Master Plan](#) and the corresponding [R&I Mobility Strategy](#). Complementary strategic plans for freight transport (the [Master Plan for Freight Transport](#)) and for hydrogen (the [Hydrogen Strategy for Austria](#)) have also been published recently. Despite significant efforts, a consistent, overarching activity document listing a full set of measures, their expected contributions, and corresponding key performance indicators (KPIs) (fully describing the path to climate neutrality in 2040) has not been developed. An updated Austrian National Energy and Climate Plan reflecting the ambitious European Green Deal targets in the *Fit for 55* package (a 55% reduction in GHG emissions by 2030) might serve as the nucleus for an aggregated report of all planned measures and an alignment of their expected impact contributions.

Austrian Integrated National Energy and Climate Plan

The integrated National Energy and Climate Plan (NECP) is a planning and monitoring instrument of the EU and its member states. It is intended to contribute to improved coordination of European energy and climate policy and serves as the central instrument for implementing the EU’s renewable energy and energy efficiency targets for 2030. For Austria, the current NECP includes measures to support an increase in the share of renewable energy sources in the transport sector. In Austria, the biogenic share

in relation to the energy content of diesel is about 6.3%; for petrol, it is currently about 3.4%. Taxes such as the NoVA tax — in which a bonus/penalty system for CO₂ emissions is levied when passenger cars are first placed on the domestic market (new car purchase or private import) — provide incentives to purchase vehicles with low CO₂ emissions. Despite being obligated to provide an updated version of the NECP in 2023, no national commonly shared vision on the measures and timelines necessary has been reached to date, thus putting at risk the achievement of the national climate targets.

Taxes and Incentives

In July 2008, Austria introduced the NoVA tax for new vehicles. New cars that emit less than 87g of CO₂/km are exempt from NoVA. Further reductions of 5g of CO₂/km per year are planned until 2024. Each additional g results in a financial penalty of EUR 80 (USD 86.4) on the purchase price of a passenger vehicle. Pure biofuels are exempt from the mineral oil tax. Compressed natural gas (CNG) is exempt from the mineral oil tax as well, but it is subject to the lower natural gas tax.

Advanced Motor Fuels Statistics

Fleet Distribution and Number of Vehicles in Austria

2023 marked the fourth time in history that the total number of motor vehicles registered in Austria exceeded 7 million, with 7.34 million registered motor vehicles — an increase of 1.0% or 70,736 vehicles compared with 2022. Passenger vehicles dominate the fleet with 5.19 (compared with 5.15 in 2022) million vehicles (Table 1), representing the largest share (70.6%) of vehicles in Austria.

Fleet numbers demonstrate a continuous trend toward advanced, alternative propulsion systems, especially toward battery electric vehicles (BEVs) and hybrid electric vehicles (HEVs) (Figure 1). For instance, 155,491 BEVs and 158,867 HEVs were registered in 2023, illustrating a positive trend continuing from previous years and following an exponential trajectory. The number of vehicles powered by CNG and liquefied petroleum gas (LPG), including bivalent ones, remained relatively stable, representing a moderate fleet level of 5,114 vehicles (compared with 5,512 in 2022). The number of bivalent vehicles decreased from 2,947 in 2022 to 2,771 in 2023, and the CNG vehicle fleet also decreased marginally from 2,564 in 2022 to 2,342 in 2023. With only 67 vehicles (up slightly from 62 in 2022), the fuel cell electric vehicle (FCEV) fleet is still negligible.

Table 1. Austrian Fleet Distribution of Passenger Vehicles (M1) by Drivetrain, 2017–2023

Drivetrain	2017	2018	2019	2020	2021	2022	2023
Gasoline	2,074,442	2,133,473	2,173,772	2,190,388	2,192,128	2,189,530	2,184,042
Diesel	2,770,470	2,776,333	2,772,854	2,762,273	2,717,475	2,651,280	2,584,985
Electric	14,618	20,831	29,523	44,507	76,539	110,225	155,490
LPG	2	2	2	2	1	1	1
CNG	2,433	2,365	2,602	2,753	2,654	2,564	2,342
H ₂	19	24	41	45	55	62	67
Bivalent gasoline/ethanol (E85)	5,992	5,769	5,770	5,190	4,878	4,595	4,326
Bivalent gasoline/LPG	335	333	330	330	331	331	334
Bivalent gasoline/CNG	2,773	3,177	3,143	2,978	2,801	2,616	2,437
Hybrid gasoline/electric	26,039	34,086	45,645	68,983	108,978	148,284	195,439
Hybrid diesel/electric	1,455	2,463	6,172	14,378	27,996	41,402	55,543
Total	4,898,578	4,978,856	5,039,854	5,091,827	5,133,836	5,150,890	5,185,006

Source: Statistik Austria.

New Registrations

In 2023, 239,150 (compared with 215,050 in 2022) new passenger cars were registered. After a Covid-related decline of 10.3% in 2022, registrations again show an upward trend with +11.2% (+24,100 vehicles). Despite the higher overall registration numbers, new registrations of petrol- and diesel-powered vehicles continued to fall by 1.5% to 77,354 (versus 78,567 in 2022) and by 3.2% to 46,568 (versus 48,155 in 2022), respectively.

With 47,621 new registrations, all-electric passenger cars showed an increase of 39.4%. The number of vehicles with hybrid drivetrains also increased (petrol-hybrid: +30.1%, diesel-hybrid: +8.9%). Overall, in 2023, the share of all-electric passenger cars was 19.9%, the share of hybrid passenger cars was 28.3%.

Overall, the share of all alternatively powered passenger cars increased to 48.2% (compared with 41.1% in 2022), confirming the transition toward alternative drivetrains.

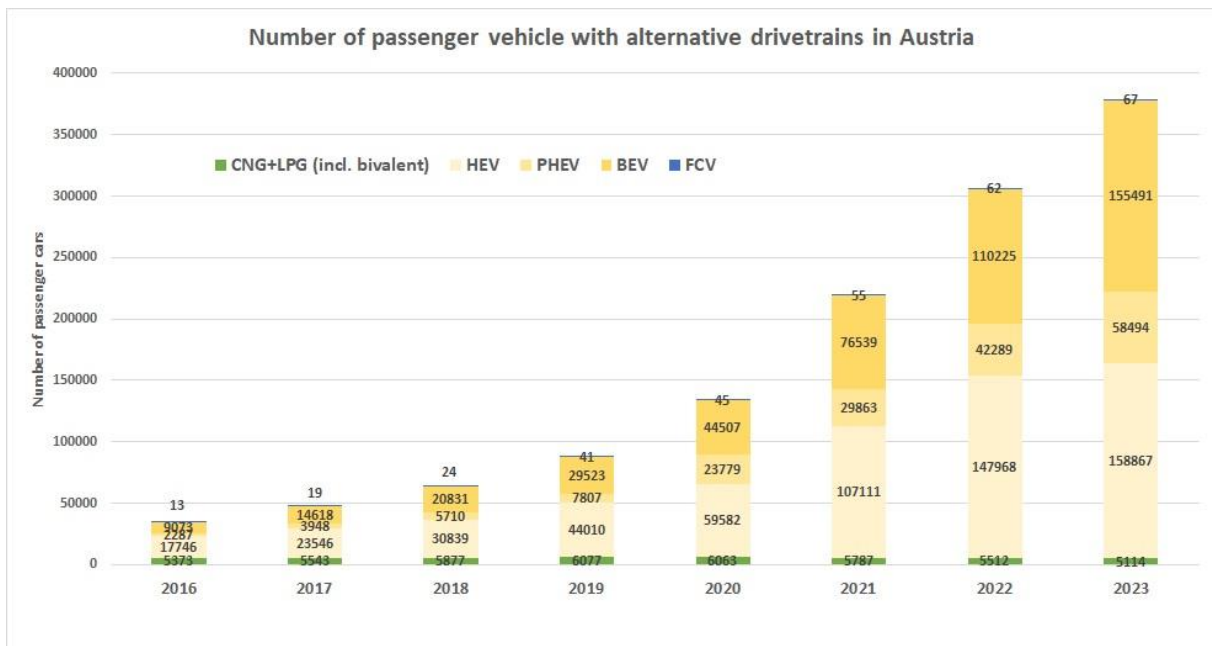


Figure 1. Trends for vehicles with alternative drivetrains in Austria, 2016–2023 (Source: Statistik Austria)

Average CO₂ Emissions of Passenger Cars

In 2023, the CO₂ emissions of newly registered passenger cars measured, on average, 130 g/km (compared with 134 g/km in 2022), based on the Worldwide Harmonised Light Vehicles Test Procedure (WLTP) and excluding electric and hydrogen vehicles. The number drops to 104 g/km (compared with 112 g/km in 2022) if electric and hydrogen vehicles are included. The average emissions for petrol-powered M1 vehicles is 138 g/km (compared with 138 g/km in 2022); diesel-powered passenger vehicles generate an average of 146 g/km (compared with 149 g/km in 2022).

Development of Filling Stations

By the end of 2022, Austria had 2,759 publicly accessible filling stations (compared with 2,748 in 2021). As an annual average for 2023, the price of gasoline for private use at a filling station was EUR 1.599 (USD 1.727) per liter; the price of diesel was EUR 1.643 (USD 1.774) per liter. In 2023, 170 public CNG stations are available; 41 LPG filling stations are available (same as in 2022). In addition, four public liquefied natural gas (LNG) filling stations are in operation: in Ennshafen and St. Marienkirchen (both Upper Austria), Feldkirchen (Styria), and Vienna.

Austria has seven hydrogen fueling stations (HFSs); five are publicly accessible. Of the other two, access in one is limited to companies, commercial enterprises, and municipalities, and the other is dedicated to hydrogen research. Except for the latter, all HFSs support a pressure of 70 MPa.

Research and Demonstration Focus

Energy Model Region

As part of the “[Energy Model Region](#)” initiative, made-in-Austria energy technologies are developed and demonstrated in large-scale, real-world applications with international visibility. The Austrian Climate and Energy Fund (KLIEN) invests up to EU 120 million (USD 130 million) in three Energy Model Regions. One of the regions — [WIVA P&G](#) — demonstrates the transition of the Austrian economy and energy production to an energy system based heavily on green hydrogen. Particular emphasis is focused on the development of hydrogen transport applications. A [project database](#) is available online. The WIVA P&G Energy Model Region forms part of the Mission Innovation Hydrogen Valley family.

klimaaktiv mobil Program

Austria’s national action program for mobility management, [klimaaktiv mobil](#), supports the development and implementation of mobility projects and transport initiatives that aim to reduce CO₂ emissions. Since 2004, 21,000 climate-friendly mobility projects have been funded. The klimaaktiv mobil website offers a map with details of each project. Total financial support until 2021 amounted to EUR 168 million (USD 181 million).

IEA Technology Cooperation Programmes Funding

Austria has been actively involved in the [IEA Technology Collaboration Programmes \(TCPs\)](#) since joining the IEA in 1975. The TCPs are seen as an important complement to Austrian national energy research and innovation (R&I) activities and contribute via Task outcomes and recommendations to national priorities. This funding programme fosters Austrian participation in the collaborative work within the IEA, disseminates results, and facilitates networking activities. On a national level, a yearly network event connects the expert networks active in the different IEA TCPs.

R&I Mobility Strategy 2030

The [R&I Mobility Strategy 2030](#) provides financial support for R&I projects and activities for sustainable passenger and freight transport. The R&I Mobility Strategy 2030 focuses on four mission areas: Cities, Regions, Digitalization, and Technology. The annual budget ranges from EUR 15 million to 20 million (USD 16.2 million to USD 21.6 million). A [project database](#) is available online.

ERA-NET Bioenergy

In the [European Research Area \(ERA-NET\) Bioenergy](#), Austria cooperates with Germany, Poland, and Switzerland in funding transnational bioenergy research and innovation projects.

Outlook

Austria is committed to reaching carbon neutrality by 2040, ten years earlier than the EU. The supporting Government Program identifies alternative fuels as indispensable for reaching this ambitious goal. Advanced motor fuels play a crucial role in the Austrian Climate and Energy Strategy and are considered an essential element for a successful Austrian transition toward sustainable mobility.

The areas of deployment, though, depend on the use case. Electrification is the preferred option for use cases with limited energy requirements, such as passenger cars or light-duty vehicles with limited mileage. Here, R&I funding schemes are no longer directed at improving internal combustion engine (ICE) drivetrains. Funding programs, including for ICE applications, therefore focus on hydrogen, biofuel, and synthetic fuel topics for use cases with high-energy-density demands, such as aviation, waterborne, or non-road mobile machinery applications.

Since 13 April 2024, the Regulation (EU) 2023/1804 on the deployment of alternative fuels infrastructure is in force. The regulation outlines a framework for the deployment of charging and refueling infrastructure for road vehicles across the EU. It includes mandatory targets for member states instead of previous indicative targets, thus aiming to solve the uneven distribution of publicly accessible recharging infrastructure — a prerequisite for an EU-wide transition toward alternative drivetrains.

Additional Information Sources

- Federal Ministry for Climate Action, Environment, Energy, Mobility, Innovation and Technology,
<http://www.bmk.gv.at/>